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# **Simulation as a method for developing new work processes in a an out-patient unit**

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## **Abstract.**

### *Introduction*

Healthcare organization is an important but unfortunately overlooked subject. When new hospitals are designed architects are the first to sketch design thereby defining the confinements and to some extent how the new organization will function. This paper presents simulation as a novel and cost effective approach to developing new department design and organization.

### *Material and methods*

A large outpatient department with a staff of 328 full time employees and 18000 patient visits a year serve as case. The research team spent 5 days of observation study in the department examining secretary work, reception, meetings, patient treatment, and waiting areas. Two doctors, 2 nurses and 1 secretary participated in 4 workshops of 3 hours and 3 simulations each with duration of a day. The 4 workshops explored the current work practice and developed a new future department. The workshops used A1 cardboards and LEGO figures to pretend patient and staff movement. Workshop 1 identified challenges and breakdowns using drawings to of the communication structure. The second workshop introduced an organic star-like shape and made the medical practitioners develop a new department within this structure.

The simulation-method used in all 3 sessions was tabletop simulation as a tool to explore and develop department layout and organization. Again A1 cardboard, LEGO figures and boxes to simulate rooms. In the two first sessions organization models derived from the workshops where tested, and during this a new organization principle was developed. The 3<sup>rd</sup> and last simulation was used to test the robustness and generalizability of the discovered model, using participants from a different medical specialty and hospital.

### *Results*

The participatory approach in the workshops revealed problems with communication, collaboration, IT, and layout of the department. This insight allowed the medical staff to

develop a new department layout and organization, which was fundamentally different from their current work practice.

The simulations resulted in development of a new organization model for outpatient departments: The Star-model. The star-model introduces three areas and a new role. The three areas are: 1) the core an area for the medical staff, 2) the examination rooms where medical staff and patients meet, and 3) the patient area with reception. During simulation it was discovered that a coordination role was needed to ensure smooth operation.

### *Conclusions*

Simulation is a low-cost but powerful tool for exploring and developing new types of layout and organization in healthcare.

**Keywords.** Simulation, organization, outpatient healthcare

**Theme:** 5. New ways of organizing healthcare and delivering care: Methods, developments and evaluations.